Call for Position Papers: Operating System and Runtime Software for Exascale Systems

The research challenges associated with Exascale systems have been articulated in numerous reports. It is clear that new approaches are needed to address these tremendous challenges. The Exascale Operating Systems and Runtime (OS/R) Technical Council (TC) has been convened by the Department of Energy (DOE) Office of Science and National Nuclear Security Administration to develop a research agenda and plan to address these challenges. This activity will result in a report describing the research priorities and the process used to develop this plan. The report will be published in November 2012. As part of the process, we solicit community input, in the form of position papers that describe novel research approaches for exascale OS/R. Responsive submissions will be made public via the OS/R TC website and portions may be included in the final report. The OS/R TC will review these position papers and invite selected contributors to participate in a workshop to be held on October 4-5, 2012 in Washington, DC.

Necessary background information, including previous exascale reports and submission instructions, can be found on the public web pages for the OS/R TC: https://collab.mcs.anl.gov/display/exaosr

Requirements:
Position papers should describe a fundamental computer science research approach in the development of operating systems or runtime software to addresses the key challenges associated with exascale computing systems. This description should be followed by a brief summary of related work and an assessment of the approach based on the following dimensions:

- **Challenges addressed**: which exascale OS/R challenges does this approach address?
- **Maturity**: what are the indicators that this approach will address the identified challenges?
- **Uniqueness**: to what extent is the proposed approach unique to Exascale systems? could it be addressed by other research programs?
- **Novelty**: How is this approach different than existing solutions?
- **Applicability**: to what extent will the proposed approach, if successful, be applicable to other areas?
- **Effort**: how much effort is needed to effectively explore this approach?

Each position paper must be no more than two pages. The paper may include any number of authors, but must provide contact information for a single "contact" author. There is no limit to the number of position papers that an individual or group can submit. Authors are strongly encouraged to follow the structure presented above.

Selection:
Authors of selected position papers will be invited to participate in a workshop based on the overall quality of the position paper(s) and our expectation that their inclusion in the workshop will stimulate constructive discussion by workshop participants. Unique positions that are well presented and emphasize transformative approaches will be given preference.

Summary:

- Length: Up to **2 pages** (no additional material other than a list of references cited will be considered)
- Due Date: *July 13.* Instructions for submission are available at the OS/R TC website.
- Notification of Selection for Workshop Presentation: *Aug 3*
- OS/R Workshop: *October 4-5*, Washington DC

Exascale OS/R Technical Council:

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